

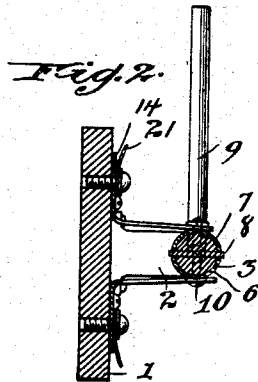
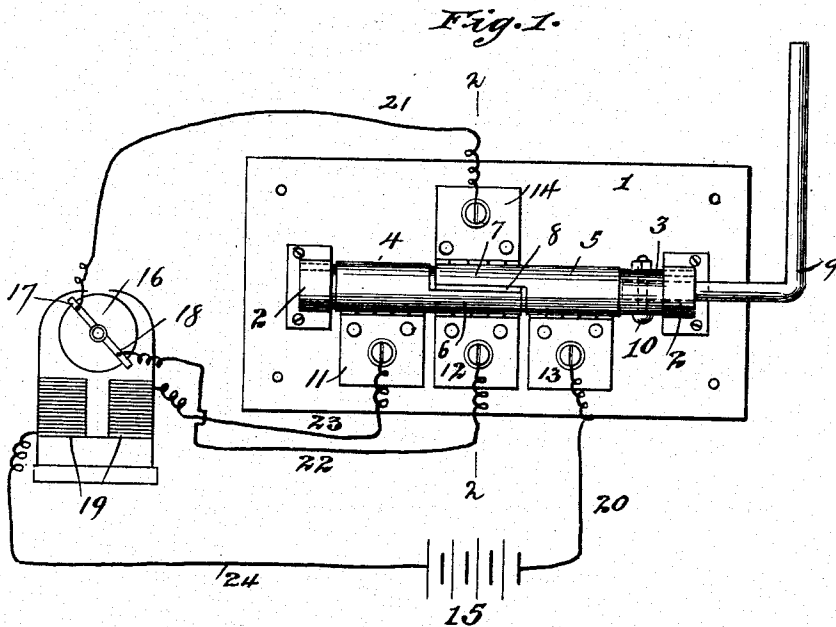
No. 673,564.

Patented May 7, 1901.

W. MORRISON.
RHEOTROPE.

(Application filed June 18, 1900.)

(No Model.)



Witnesses,
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UNITED STATES PATENT OFFICE.

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RHEOTROPE.

SPECIFICATION forming part of Letters Patent No. 673,564, dated May 7, 1901.

Application filed June 18, 1900. Serial No. 20,660. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MORRISON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rheotropes, of which the following is a specification.

This invention relates to rheotropes, and has for its object to provide a simple and efficient device of this description whereby the direction of a current may be readily reversed through a portion of the circuit.

While capable of general application, the device is more particularly adapted for use in connection with motor-vehicles; and the invention consists in certain novel features, which I will now proceed to describe and will then particularly point out in the claims.

In the accompanying drawings, Figure 1 is a plan view, partly diagrammatic, of a structure embodying my invention; and Fig. 2 is a sectional view taken on the line 2 2 of Fig. 1.

In the said drawings, 1 indicates a suitable base, preferably of insulating material, on which are mounted bearings 2, adapted to receive a shaft 3, which is preferably constructed of insulating material, such as hard rubber. Mounted upon the shaft 3, so as to rotate therewith, are two contacts 4 and 5, each constructed of a suitable conductive material, such as copper, and each being cylindrical in shape to fit the shaft, the adjacent ends being cut away for one-half of their diameter and the semicylindrical extensions 6 and 7 thus formed being overlapped, as shown in Fig. 1, without being brought into contact with each other. The parallel edges of these semicylindrical portions, which extend in a direction parallel with the axis of the shaft 3, have interposed between them a strip of insulating material, which is raised slightly above the surface of the contacts, and as a simple and efficient construction for this purpose I may employ a strip 8 of insulating material, such as vulcanized fiber, which extends through a slot in the shaft 3 after the manner of a key, as shown in Fig. 2, and which serves not only to provide a slightly-projecting insulation between the segments of the rheotrope, but also to prevent any possible slipping of the contact-segments upon the

shaft. The shaft 3 is provided with a suitable handle 9, by means of which it may be operated, and in the construction shown this handle is inserted into a suitable aperture in one end of the shaft and secured in position by a bolt 10.

In connection with the movable parts of the device there are employed fixed contact-brushes, of which three (numbered, respectively, 11, 12, and 13) are located on one side of the shaft, while the remaining brush (numbered 14) is located on the opposite side of the shaft. The brush 11 lies opposite and is in contact with the cylindrical portion of the contact 4 and the brush 13 lies opposite and is in contact with the cylindrical portion of the contact 5. The brushes 12 and 14 lie opposite the central portion of the device and in contact with the semicylindrical portions 6 and 7, being in contact with one or the other, according to the position into which the shaft 3 is turned.

In order to illustrate the operation of the device, I have shown in connection with Fig. 1 a diagrammatic illustration of one way in which the structure may be connected up for use. In this construction, 15 indicates a storage battery or other suitable source of electrical energy, and 16 a motor, one of the commutator-brushes of which is indicated at 17 and the other at 18, while the field-coils are indicated at 19. 20 indicates a wire connecting one terminal of the battery with the brush 13. The brush 14 is connected by a wire 21 with the commutator-brush 17 and the brush 12 is connected by a wire 22 with the commutator-brush 18. The brush 11 is connected by a wire 23 with the field-coils 19 and thence by a wire 24 with the other terminal of the battery 15. It will be observed that when the rheotrope is in the position shown the current will actuate the motor 16 in one direction. When it is desired to reverse the direction of motion of the motor 16, the rheotrope is so turned as to bring the semicylindrical portion 6 into contact with the brush 14 and the semicylindrical portion 7 into contact with the brush 12, whereupon the flow of the current through the motor and the direction of travel of this latter will be reversed.

The device is simple, compact, and efficient and at the same time light and inexpensive, and by reason of these qualities is particularly adapted for use in motor-vehicles.

- 5 The detail of construction set forth may obviously be varied without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself to the precise construction or application described in the foregoing specification. For instance, the central rheotrope-brushes might be connected with the field-coils of the motor and with the battery direct, in which case the outer rheotrope-brushes would be connected
15 to the commutator-brushes of the motor.

I claim—

1. A rheotrope comprising an insulating-shaft, contact-segments mounted thereon having cylindrical outer ends and semicylindrical overlapped inner ends, projecting insulating-strips between the edges of said overlapped portions, brushes bearing upon the outer cylindrical portions, and other brushes bearing upon the overlapped central portions at opposite sides, substantially as described.
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2. A rheotrope comprising an insulating-shaft, contact-segments mounted thereon, having cylindrical outer ends and semicylindrical overlapped meeting ends, a body of
30 rigid insulating material inserted diametric-

ally through the cylindrical shaft and having its ends arranged to extend between the overlapped semicylindric contact-segments and to project slightly beyond the outer cylindric surface of the same, brushes bearing upon the outer cylindric portions of said contact-segments and a pair of other brushes bearing upon the overlapped central portions at opposite sides, substantially as described. 35

3. The combination, with a rheotrope comprising an insulating-shaft and contact-segments having cylindrical ends and semicylindrical overlapped central portions, of a motor, a battery or other source of electricity, a brush connected with one terminal of said battery and bearing upon the cylindrical portion of one of the contact-segments, a brush bearing upon the cylindrical portion of the other contact-segment and connected with the other terminal of the battery through the field-coils of the motor, and oppositely-disposed brushes bearing upon the overlapped central portions of the contact-segments and connected with the respective commutator-brushes of the motor, substantially as described. 40 45 50

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